

Work Order ID 65987

Tuesday, February 01, 2011 7:10:27 AM

Page 1

Item ID: D3391-023

Accept

Revision ID:

Item Name: Mid Tube Assembly

Setup Start

Stop

Start Date: 2/1/2011 Start Qty: 1.00

Required Date: 2/4/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date: 1-2-1

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool # Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D3391

Rev H

100

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Cut tube to finish length as per Dwg D3391

2-Identify as D3391-023

3-Drill pilot holes using DT8796 (Do not drill "B" holes) and drill only 1 fwd saddle hole on one side only as per Dwg D3391

4-Open saddles and GHW holes to Ø0.375" except for fwd saddle hole of detail "J"

5-Remove .030" from Fwd indexing Ridge as per Dwg D3391

6-Remove indexing ridge on Fwd & Aft end of skidtube as per Dwg D3391

7-Deburr

8-Drill #30 pilot holes using wearplate Jig DT8217 Identify Ø0.250" holes with paint marker,

9-Open wearplate holes of D3391-023 assembly detail section G-G to Ø0.250" (14 holes) as per Dwg D3391 and 2 holes in section Detail "J", do not open wearplate holes of section "J"

10-Open wearplate holes of D3391-023 assembly detail section H-H to Ø0.297" (20 holes) as per Dwg D3391

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries

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Page 2

Item ID: D3391-023

Accept

Revision ID:

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 Start Qty: 1.00

Required Date: 2/4/2011 Req'd Qty: 1.00

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

11-Open .375" holes to .438" ***do not open fwd saddle holes***

12-Locate D3391-021 in D3391-023 at 9.00" (see view z-z)

13- Transfer drill one fwd saddle hole only to .188" dia, transfer drill all remaining fwd saddle holes using DT 8149 locating from previously drill .188" dia hole, using t-pins and clicos to ensure perfect allingment, open up previously tranfer drilled pilot holes in D3391-023/-021 to 0.438" dia. in D3391-021

14- Transfer drill 2 wearplate holes into D3391-021 using DT8217, locating from two previously drilled holes, drill remaining wearplate holes into D3391-021.

15- Locating from two fwd wearplate holes drillol remaining 6 wearplate holes in D3391-021 using DT8937

16- Open 2 fwd wearplate holes in D3391-023 to .250" dia.

17- counterbore two aft wearplate holes in D3391-021 as per dwg

18- Open 12 wearplate holes in D3391-021 to 0.297" dia.

19-Deburr and blow out all chips from inside tube



Cust Item ID:

Customer:



DP 11-2-7

N/A

DP 11-2-7

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Item ID: D3391-023

Accept



Setup Start



Revision ID:

Stop



Item Name: Mid Tube Assembly

Start Date: 2/1/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/4/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: Date: Tooling: Date:

Stop



QC: Date: SPC (Y/N): Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S 11/02/08

0.00

Memo



120



HandFinish

Hand Finishing

Chemical Conversion Coat per QSI005 4.1

0.00

0.00

Memo



11-2-8

130



QC

Quality Control

QC3- Inspect Part Finish

0.00

0.00

Memo

BE 11/02/08

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Item ID: D3391-023

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Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Open float bag holes as per dwg
2-C'sink float bag holes as per dwg
3- Prepare tube for welding
4-Bond web in place as per Dwg D3391 & QSI 015.
Adhere for 12 hours)
A/R Sikaflex exp: 11-9-30
batch#: 1116040

0.00

150

0.00



QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

160

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1-Weld crossbolt spacer as per dwg D3391 & QSI 004
2-grind weld flush

0.00

DP 11-2-8
BE 11/02/09

BE 11/02/09

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Item ID: D3391-023

Accept



Setup Start



Revision ID:

Stop



Item Name: Mid Tube Assembly

Start Date: 2/1/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 2/4/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals:

Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

170

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

8/11/02/10

180

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8/11/02/10



185

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

Hand Finishing

AND REALODINE AS PER PAR09-043

1-8 11/02/10

Work Order ID 65987

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Page 6

Item ID: D3391-023

Accept

Setup Start

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Stop

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Cust Item ID:

Required Date: 2/4/2011 Req'd Qty: 1.00

Customer:

Reference:

Run Start

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

190

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

M 115951

Powder Coating

Memo

0.00

START TIME: 3:45
OVEN TEMPERATURE: 320°
FINISH TIME: 4:15

1 BL 11-2-10.

200

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 φ BL 11-2-11

Work Order ID 65987

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Start Date: 2/1/2011 Start Qty: 1.00

Required Date: 2/4/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- insert D3391-021 into D3391-23

2- insert T-pins into first and third fwd saddle holes

3- ON FIRST SIDE ONLY drill out 2nd and forth fwd saddles holes to 0.500" as per DSI 9364

4- remove T-pins and locate DT9415 from first and third crossbolt hole using T-pins and clekos

5- ON 2ND SIDE ONLY ream out 2nd and forth saddle hole to 0.499". Remove DT9415

6- deburr, re-alodine and blow out chips

7- press fit D3591-1 spacers using DT9416 starting from 0.500" side

220

0.00



QC

QC5- Inspect part completeness to step on W/O

Memo

0.00

Quality Control

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Item ID: D3391-023

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Start Date: 2/1/2011 Start Qty: 1.00

Required Date: 2/4/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

230



HandFinish

Hand Finishing

HandFinishing

Memo

Install Inserts as per Dwg

0.00

0.00

240



QC

Quality Control

QC5- Inspect part completeness to step on W/O

Memo

0.00

0.00

250



Packaging

Packaging

Identify as per dwg & Stock Location: _____

Memo

0.00

0.00



1 0 11/02/11

8/10/11

40

11/1/11

Work Order ID 65987

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Item ID: D3391-023

Accept

Setup Start

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Stop

Item Name: Mid Tube Assembly

Start Date: 2/1/2011 Start Qty: 1.00

Required Date: 2/4/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

260

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

OK 11/02/16
MF
11-02-16

Picklist Print

Tuesday, February 01, 2011 7:10:24 AM

Page 1

Work Order ID: 65987

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly



Start Date: 2/1/2011

Required Date: 2/4/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP A: 05.10.20 New Issue I KJ/EC
 IPP B: 06.02.10 ECN773 dwg rev.D EC
 IPP C: 07.03.20 rev F dwg EC
 IPP D: 07.03.28 re-format EC
 IPP E: 07.10.31 ecn 1053P EC
 IPP Rev: F ECN 1056 07-11-13 DD verified by: EC
 IPP Rev: G 08-09-08 new process (ecn 08-510) DD verified by: EC
 IPP Rev: H 08-09-10 revH as per dwg DD verified by: EC
 IPP Rev: I 08-11-13 Removed steps per w/o, QC KJ verified by: ec IPP
 Rev: J add in seq 140 expire date & b# sikaflex DD 10.02.17 verified by: EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D2500-1-100 | | Manufactured | No | | | 100 | Each | 116.0000 | 1 | 1 | | | |
| Skidtube Extrusion | | | | | | | | | | | | | |
| <div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div> | | | | | | | | | | | | | |
| <div> <div>LG</div> <div>116</div> <div></div> </div> | | | | | | | | | | | | | |
| <div> <div>37065</div> <div>33</div> <div></div> </div> | | | | | | | | | | | | | |
| <div> <div>50251</div> <div>83</div> <div></div> </div> | | | | | | | | | | | | | |
| D3391-021 | | Manufactured | No | | | 100 | Each | 0.0000 | 1 | 1 | | | |
| Fwd Tube Assembly | | | | | | | | | | | | | |
| D3389-1 | | Manufactured | No | | | 140 | Each | 3.0000 | 1 | 1 | | | |
| Web | | | | | | | | | | | | | |
| <div> <div>Location</div> <div>Loc Qty</div> <div>Loc Code</div> </div> | | | | | | | | | | | | | |
| <div> <div>LG</div> <div>3</div> <div></div> </div> | | | | | | | | | | | | | |
| <div> <div>63343</div> <div>1</div> <div></div> </div> | | | | | | | | | | | | | |
| <div> <div>64877</div> <div>2</div> <div></div> </div> | | | | | | | | | | | | | |

BE 11/02/01

MF 11-02-10

DP 11-2-8

| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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| | | | | | | | | |

NOTE: Date & initial all entries

Picklist Print

Tuesday, February 01, 2011 7:10:24 AM

Page 2

Work Order ID: 65987

Parent Item: D3391-023

Parent Item Name: Mid Tube Assembly



Start Date: 2/1/2011

Required Date: 2/4/2011

Start Qty: 1.00

Required Qty: 1.00

D3681-1 Manufactured No

160 Each

51.0000

5

5



Spacer

Location

Loc Qty

Loc Code

LG

51

56802

14

57656

12

63321

5

64620

20



BE 11/02/09

B 65990 (25)

D3591-1 Manufactured No

210 Each

31.0000

2

2



Bushing

Location

Loc Qty

Loc Code

ST072

31

47121

2

57350

29



ALS4-1032-130 Purchased No

230 Each

807.0000

20

20



Insert

Location

Loc Qty

Loc Code

PKG11

480

114723

480

ST281

192

116049

192

ST282

96

110511

10

115911

86

ST381

39

114654

39



11/02/11 PTO=)

Y20

Tuesday, February 01, 2011 7:10:24 AM

Shop Packet Print

Page 2

| W/O: | | WORK ORDER CHANGES | | | | | | |
|----------|------|---|----|----------|------------|-------------------------------------|--------------------------|--|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector | |
| 11/02/11 | 230 | Assemble with: D3566-5 / B66146 (x1) GASKET D3564-5 / B65058(x1) WEARSHOE | JH | 11/02/11 | x1 x1 | | | |
| 11/02/11 | 230 | Assemble with: AN3C-4A / M116075 (x12) bolts, NAS1149C0332R / M116025(x12) washers | JH | 11/02/11 | x12 x12 | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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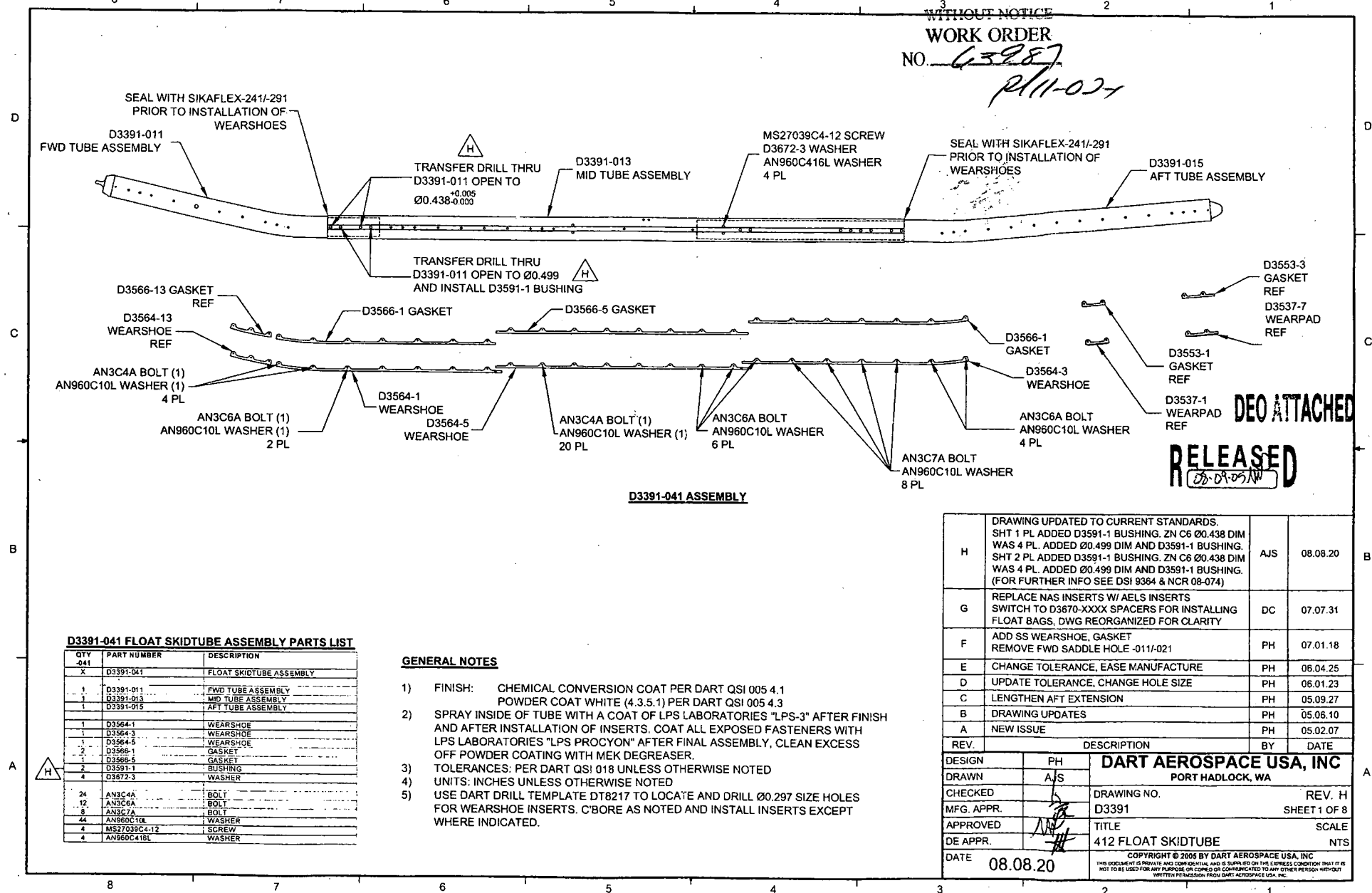
NOTE: Date & initial all entries

SHOP COPY
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UNCONTROLLED COPY
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER

NO. 63287

211-027



D3391-041 ASSEMBLY

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|-----|--------------|-------------------------|
| 1 | D3391-041 | FLOAT SKIDTUBE ASSEMBLY |
| 1 | D3391-011 | FWD TUBE ASSEMBLY |
| 1 | D3391-013 | MID TUBE ASSEMBLY |
| 1 | D3391-015 | AFT TUBE ASSEMBLY |
| 1 | D3564-1 | WEARSHOE |
| 1 | D3564-3 | WEARSHOE |
| 1 | D3564-5 | WEARSHOE |
| 2 | D3566-1 | GASKET |
| 1 | D3566-5 | GASKET |
| 2 | D3591-1 | BUSHING |
| 4 | D3672-3 | WASHER |
| 24 | AN3C4A | BOLT |
| 12 | AN3C6A | BOLT |
| 8 | AN3C7A | BOLT |
| 44 | AN960C10L | WASHER |
| 4 | MS27039C4-12 | SCREW |
| 4 | AN960C416L | WASHER |

GENERAL NOTES

- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
OFF POWDER COATING WITH MEK DEGREASER.
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT
WHERE INDICATED.

DEO ATTACHED

RELEASED
08-09-05

| | | | |
|------------|---|--|--------------|
| H | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C6 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9364 & NCR 08-074) | AJS | 08.08.20 |
| G | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY | DC | 07.07.31 |
| F | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/021 | PH | 07.01.18 |
| E | CHANGE TOLERANCE, EASE MANUFACTURE | PH | 06.04.25 |
| D | UPDATE TOLERANCE, CHANGE HOLE SIZE | PH | 06.01.23 |
| C | LENGTHEN AFT EXTENSION | PH | 05.09.27 |
| B | DRAWING UPDATES | PH | 05.06.10 |
| A | NEW ISSUE | PH | 05.02.07 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | AJS | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 1 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
| DATE | 08.08.20 | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMERCE TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC. | |

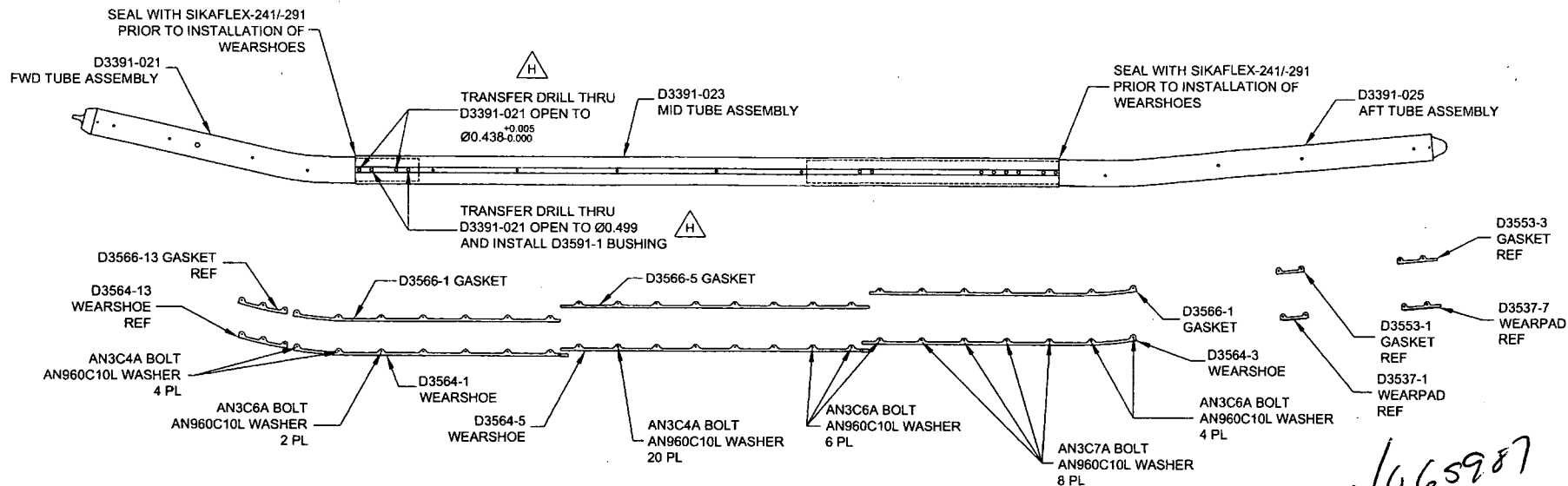
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
| | | | | | | | |

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

NOTE: Date & initial all entries



D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|-----|-------------|-------------------------|
| 1 | D3391-043 | FLOAT SKIDTUBE ASSEMBLY |
| 1 | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | D3391-023 | MID TUBE ASSEMBLY |
| 1 | D3391-025 | AFT TUBE ASSEMBLY |
| 1 | D3564-1 | WEARSHOE |
| 1 | D3564-3 | WEARSHOE |
| 1 | D3564-5 | WEARSHOE |
| 2 | D3566-1 | GASKET |
| 1 | D3566-5 | GASKET |
| 2 | D3591-1 | BUSHING |
| 24 | AN3C4A | BOLT |
| 12 | AN3C6A | BOLT |
| 8 | AN3C7A | BOLT |
| 44 | AN960C10L | WASHER |

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

| | | | |
|---|----------|---|--------------|
| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | AJS | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 2 OF 8 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | 412 FLOAT SKIDTUBE | NTS |
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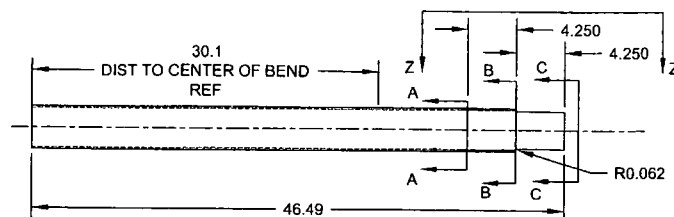
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

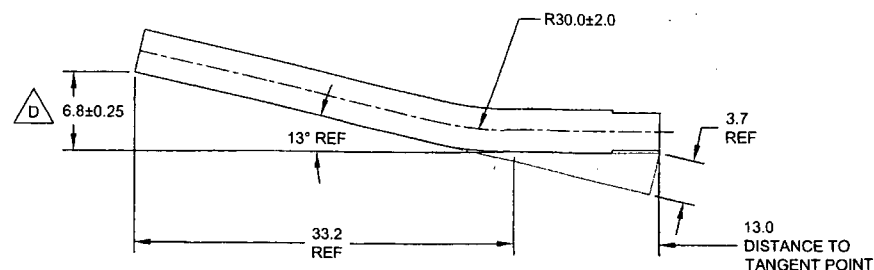
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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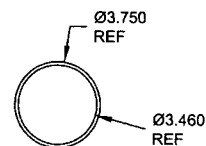
NOTE: Date & initial all entries



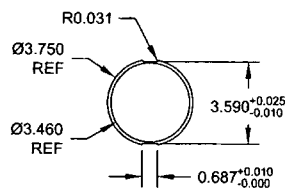
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



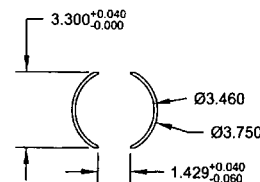
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



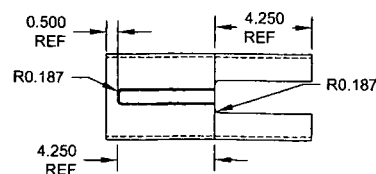
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X



SECTION C-C
SCALE 2X



VIEW Z-Z
SCALE 2X

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DEO ATTACHED
RELEASED
08-05-11

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|------------|--------------------|---|--------------|
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| DRAWN | AUS | PORT HADLOCK, WA | |
| CHECKED | <i>[Signature]</i> | DRAWING NO. | REV. H |
| MFG. APPR. | <i>[Signature]</i> | D3391 | SHEET 3 OF 8 |
| APPROVED | <i>[Signature]</i> | TITLE | SCALE |
| DE APPR. | <i>[Signature]</i> | 412 FLOAT SKIDTUBE | NTS |
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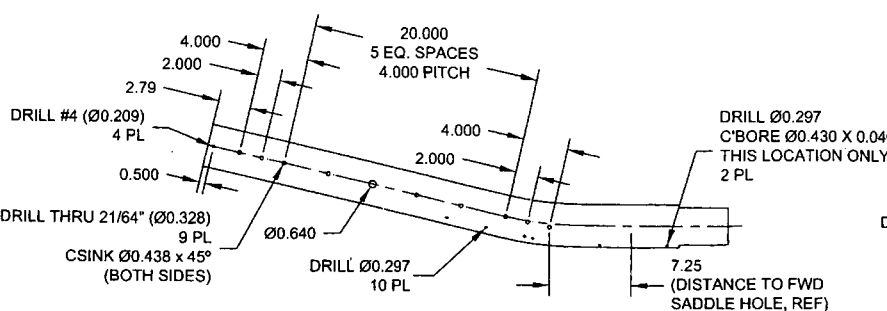
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

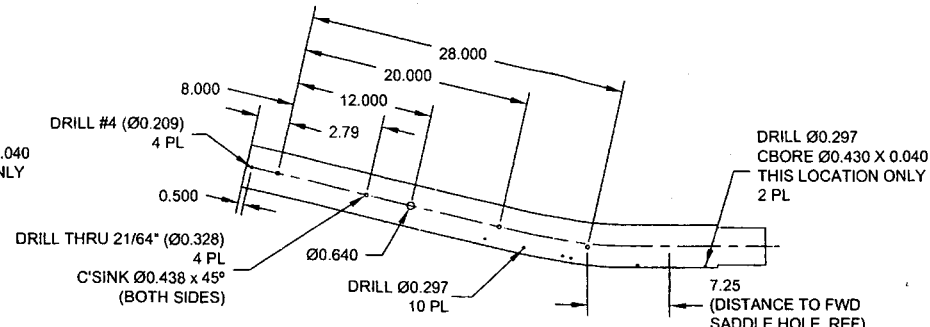
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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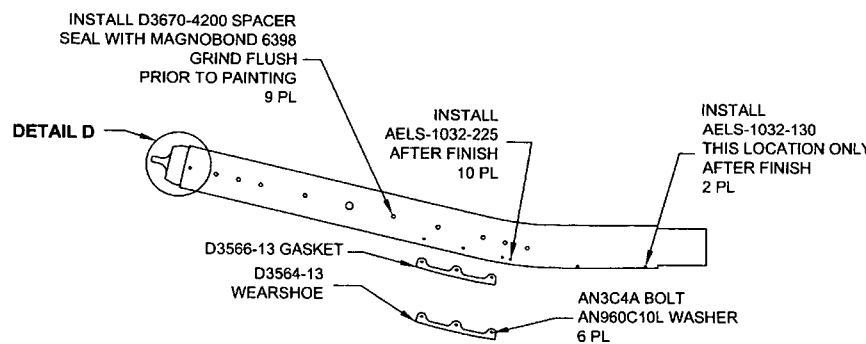
NOTE: Date & initial all entries



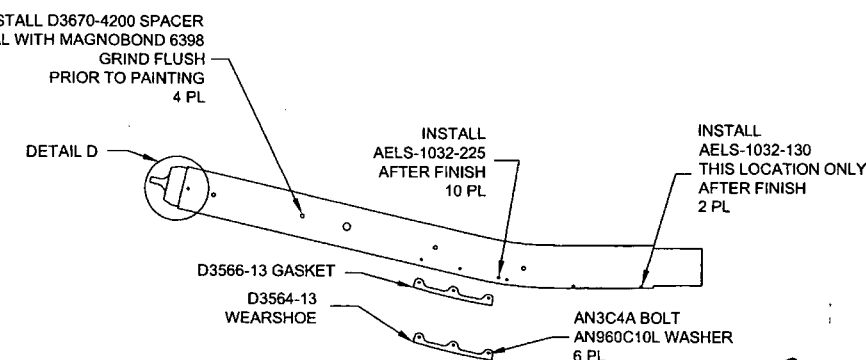
D3391-011 DRILLING DETAIL



D3391-021 DRILLING DETAIL



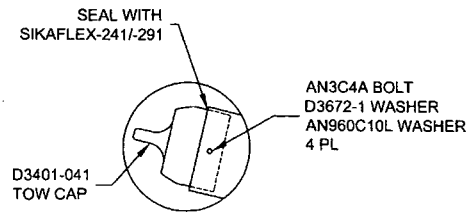
D3391-011 ASSEMBLY DETAIL



D3391-021 ASSEMBLY DETAIL

D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

| QTY - 011 | QTY - 021 | PART NUMBER | DESCRIPTION |
|-----------|-----------|---------------|-------------------|
| X | | D3391-011 | FWD TUBE ASSEMBLY |
| | X | D3391-021 | FWD TUBE ASSEMBLY |
| 1 | 1 | D6013-047 | FWD TUBE |
| 1 | 1 | D3401-041 | TOW CAP |
| 1 | 1 | D3564-13 | WEARSHOE |
| 1 | 1 | D3566-13 | GASKET |
| 9 | 4 | D3670-4200 | SPACER |
| 4 | 4 | D3672-1 | WASHER |
| 10 | 10 | AN3C4A | BOLT |
| 10 | 10 | AN960C10L | WASHER |
| 2 | 2 | AELS-1032-130 | INSERT |
| 10 | 10 | AELS-1032-225 | INSERT |



**DETAIL D
SCALE 2X**

w/lo 65987
DEO ATTACHED
RELEASED
08-09-05-10

| | | | |
|------------|----------|--|--------------|
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| DRAWN | AJS | PORT HADLOCK, WA | |
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| MFG. APPR. | | D3391 | SHEET 4 OF 8 |
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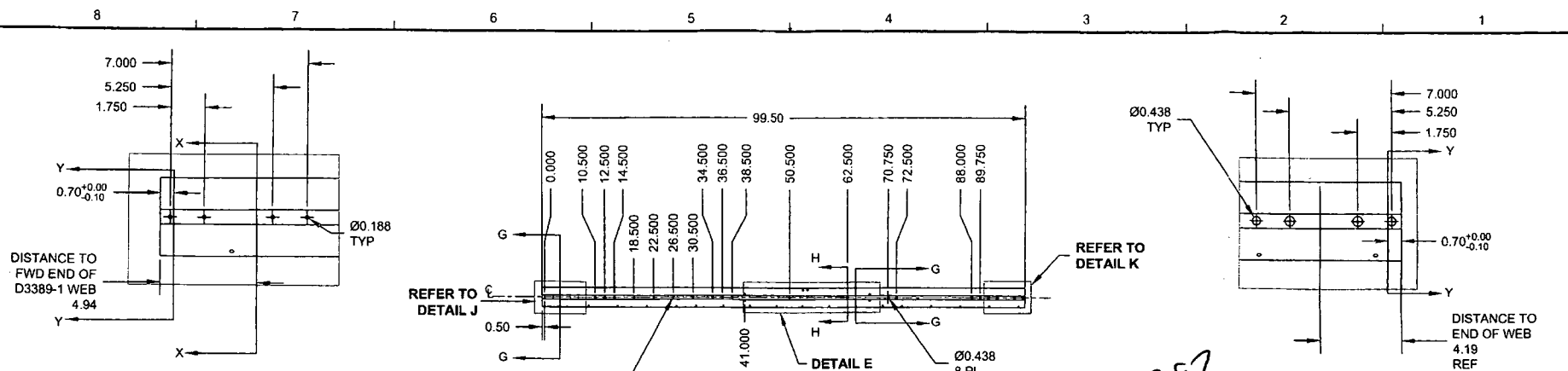
| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
| | | | | | | | |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries



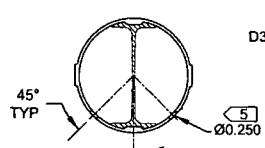
DETAIL J
SCALE 4X

DRILL THRU 21/64" (Ø0.328)
CSINK Ø0.438 X 45° (BOTH SIDES)
12 PL

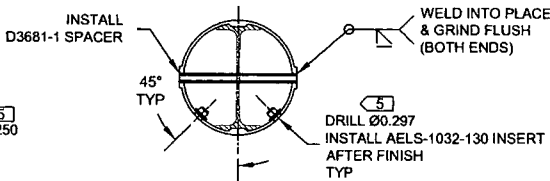
D3391-013 ASSEMBLY DETAIL

REFER TO
DETAIL K

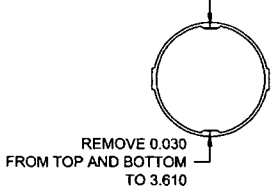
DETAIL K
SCALE 4X



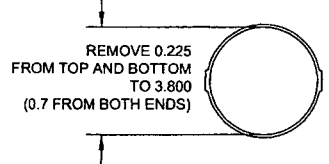
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



SECTION X-X
SCALE 5X

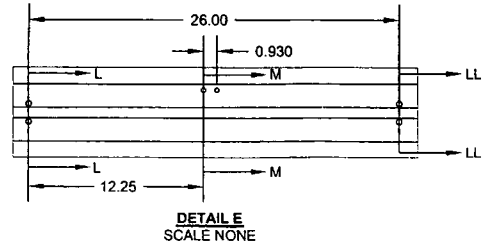


SECTION Y-Y
SCALE 5X

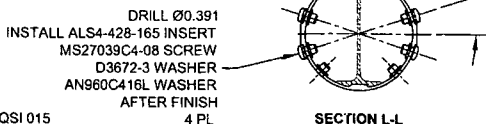
D3391-013 MID TUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER | DESCRIPTION |
|------|---------------|-------------------|
| -013 | | |
| X | D3391-013 | MID TUBE ASSEMBLY |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 4 | D3672-1 | WASHER |
| 4 | D3672-3 | WASHER |
| 12 | D3681-1 | SPACER |
| 24 | AELS-1032-130 | INSERT |
| 4 | ALS4-428-165 | INSERT |
| 4 | AN960C10L | WASHER |
| 4 | AN960C416L | WASHER |
| 4 | MS27039C1-09 | SCREW |
| 4 | MS27039C4-08 | SCREW |

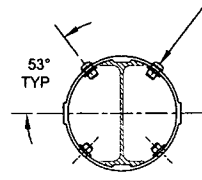
- D3391-013 MID TUBE ASSEMBLY**
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
 - 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
 - 3) WELDING: PER DART QSI 004



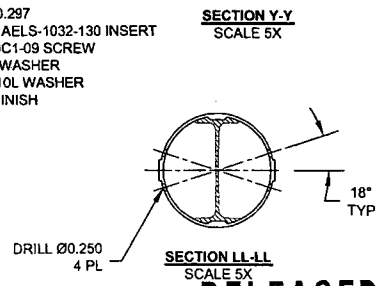
DETAIL E
SCALE NONE



SECTION L-L
SCALE 5X



SECTION M-M
SCALE 5X



SECTION LL-LL
SCALE 5X

DEO ATTACHED

RELEASED

| | | | |
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| DRAWN | AIS | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 5 OF 8 |
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| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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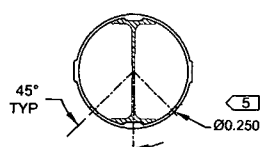
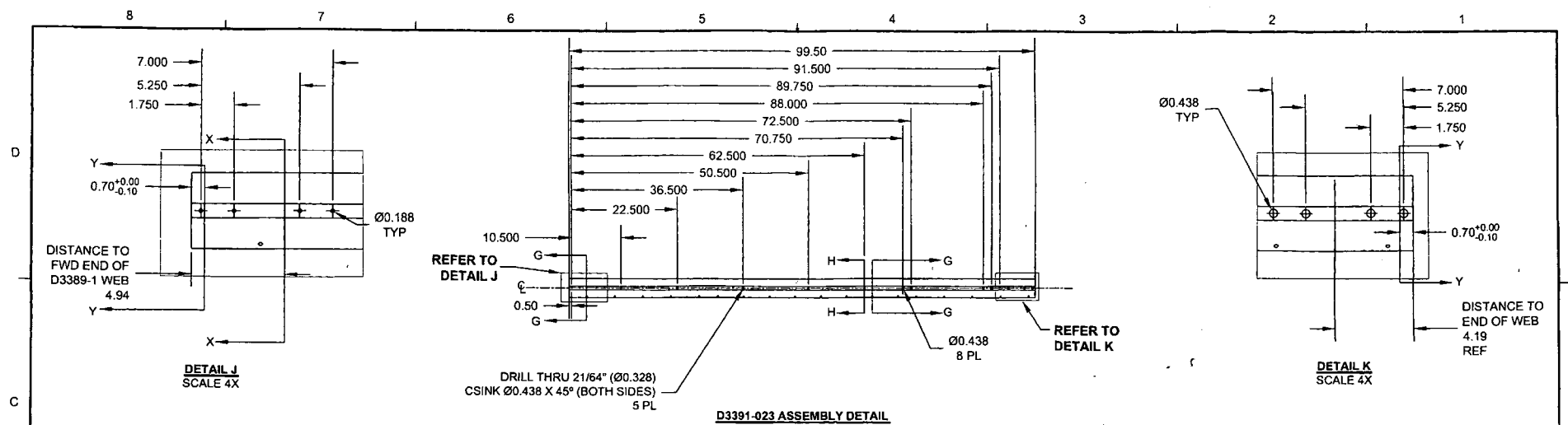
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

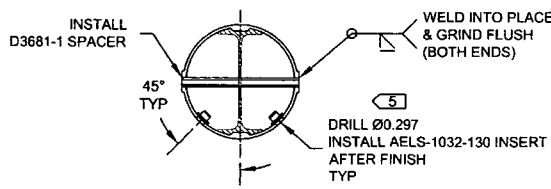
| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

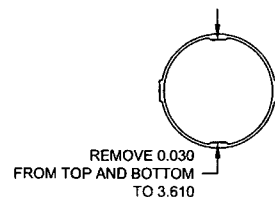
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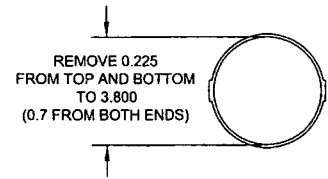
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



SECTION X-X
SCALE 5X



SECTION Y-Y
SCALE 5X

D3391-023 MID TUBE ASSEMBLY PARTS LIST

| QTY - 023 | PART NUMBER | DESCRIPTION |
|-----------|---------------|-------------------|
| X | D3391-023 | MID TUBE ASSEMBLY |
| 1 | D2500-1-100 | EXTRUSION |
| 1 | D3389-1 | WEB |
| 5 | D3681-1 | SPACER |
| 20 | AELS-1032-130 | INSERT |

D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004

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RELEASED
02-01-05-14

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| DESIGN | PH | DART AEROSPACE USA, INC | |
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| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 6 OF 8 |
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|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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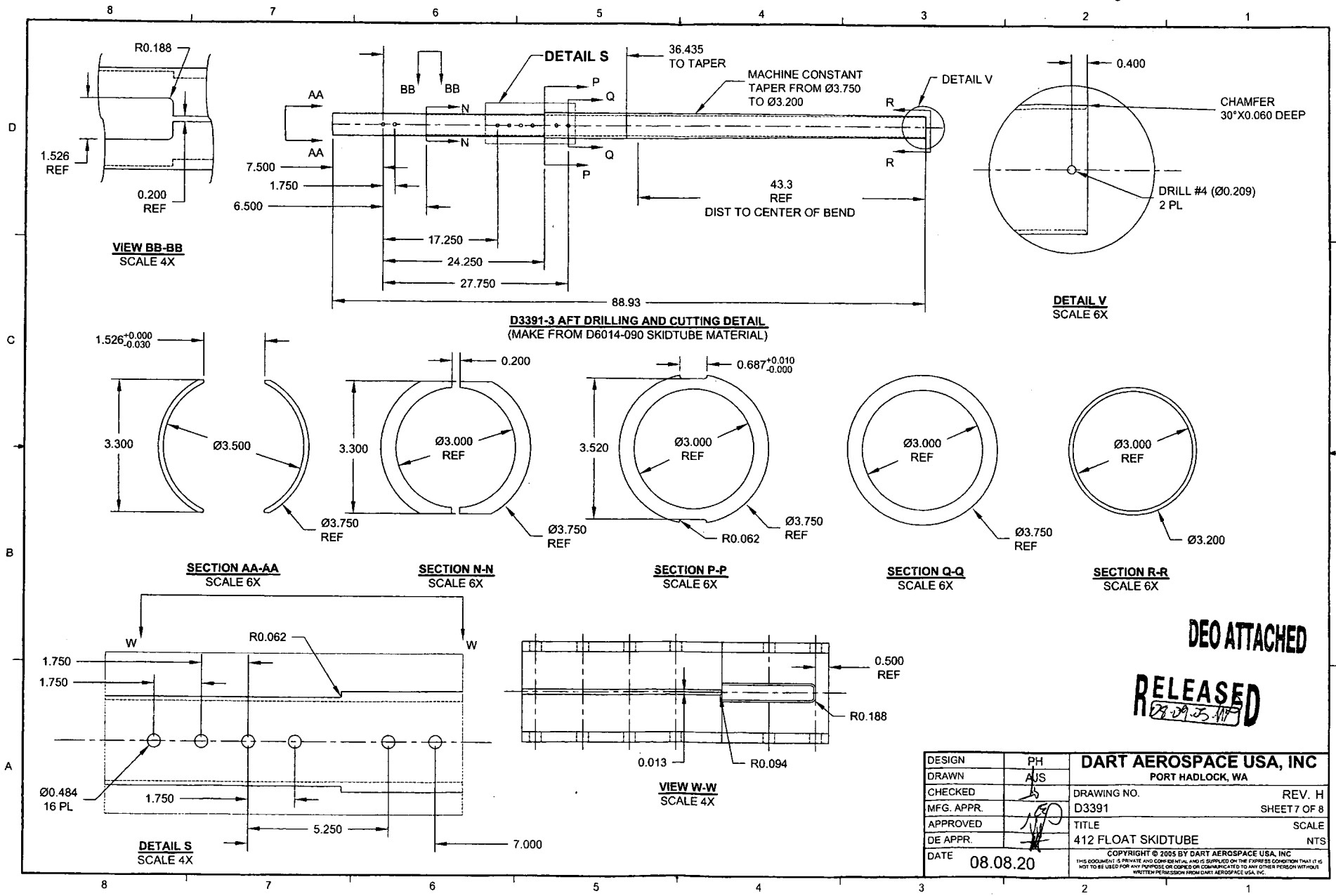
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

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RELEASED
28-09-87

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| DESIGN | PH | DART AEROSPACE USA, INC | |
| DRAWN | AUS | PORT HADLOCK, WA | |
| CHECKED | | DRAWING NO. | REV. H |
| MFG. APPR. | | D3391 | SHEET 7 OF 8 |
| APPROVED | | TITLE | SCALE |
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| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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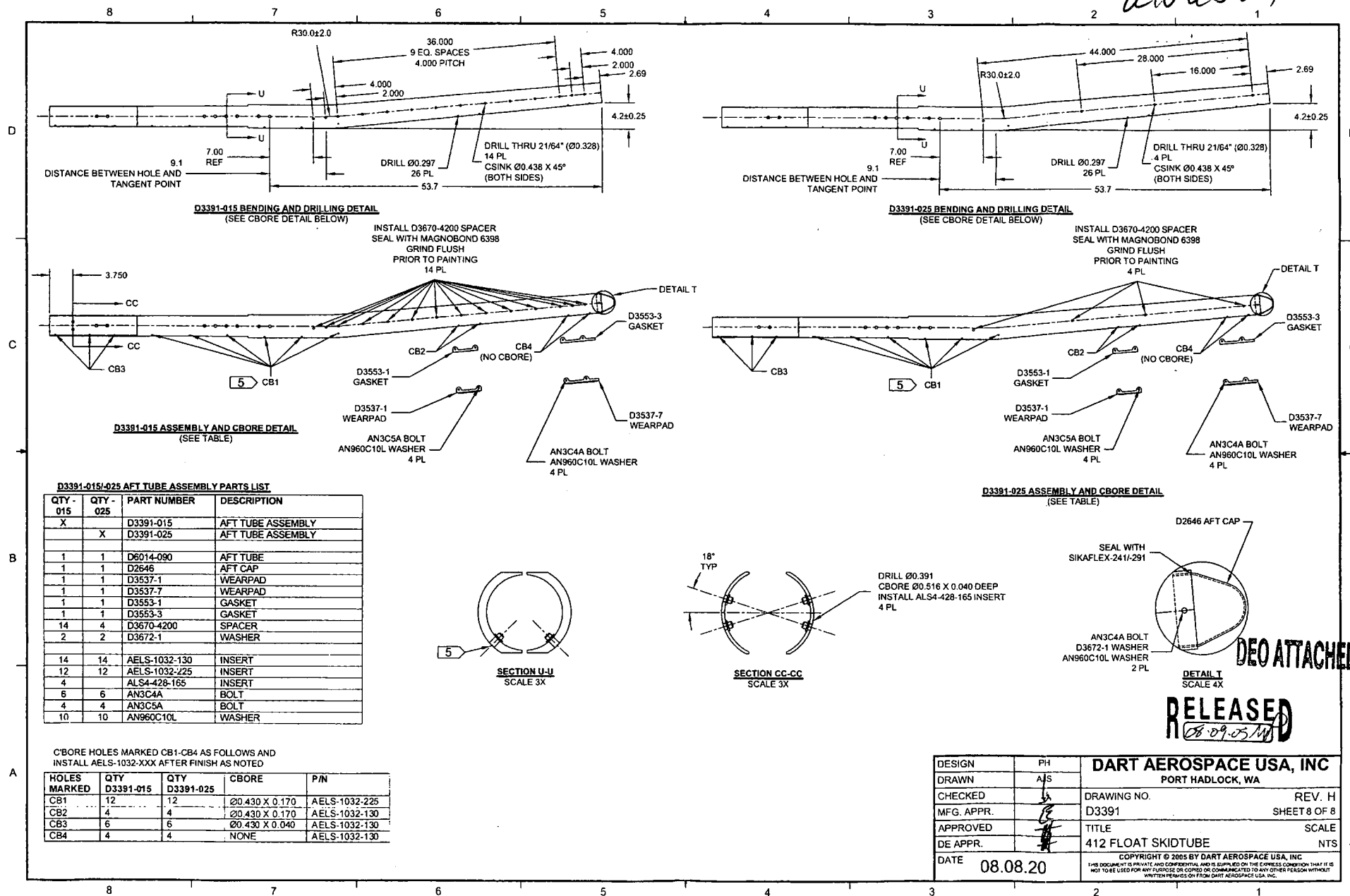
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

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| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

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|----------------------|-----------------------------|------------------------|--|--|-------------------------|---------------------------|--------------|
| DRAWING NO. D3391 | TITLE 412 FLOAT SKIDTUBE | REV. H | DART AEROSPACE USA, INC ENGINEERING ORDER | | D.E.O. NO. D3391-H-1 | SHEET NO. SHEET 1 OF 1 | SCALE NTS |
| DRAWN <i>CP</i> | CHECKED <i>h</i> | MFG. APPR. <i>h</i> | APPROVED <i>MP</i> | | DE APPR. <i>h</i> | | |
| DATE 09.09.23 | DATE 09.09.24 | DATE 09/09/25 | DATE 09/09/30 | | DATE 09/09/30 | | |

PURPOSE:

LPS-3 IS NO LONGER USED DURING ASSEMBLY OF D3391-041/-043 SKIDTUBES.

CHANGE:

AMEND NOTE 2 OF D3391-041/-043 SKIDTUBE ASSEMBLIES (ZN A6-1, A6-2) AS FOLLOWS:

- 2) ~~SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH~~
~~AND AFTER INSTALLATION OF INSERTS.~~ COAT ALL EXPOSED FASTENERS WITH
 LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
 OFF POWDER COATING WITH MEK DEGREASER.

RELEASED
 2010-02-02

MP

W65987

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| W/O: | | WORK ORDER CHANGES | | | | | |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE | By | Date | Qty | Approval Chief Eng / Prod Mgr | Approval QC Inspector |
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

| NCR: | | WORK ORDER NON-CONFORMANCE (NCR) | | | | | | |
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| DATE | STEP | Description of NC Section A | Corrective Action Section B | | | Verification Section C | Approval Chief Eng | Approval QC Inspector |
| | | | Initial Chief Eng | Action Description Chief Eng | Sign & Date | | | |
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NOTE: Date & initial all entries

NO. 244

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barkley Elliott
Job number: 65388
Part number: 13391-023
Description: mid tube
Welding Process: Tig[☒] Mig[]
Base material: Aluminum
Current: AC[] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier Pat Lewis Date of Test Coupon 11-01-18

Welder Barkley Elliott Date of Test Coupon 11-01-18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld